

# FORMER NEBRASKA ORDNANCE PLANT

## RESTORATION ADVISORY BOARD

March 23, 2006

# **Former Nebraska Ordnance Plant Restoration Advisory Board Meeting March 23, 2006**

Introductions & Administrative Items	7:00-7:10
Agenda Review	7:10-7:15
USGS Presentation	7:15-7:35
USACE Kansas City District Presentation	7:35-8:00
Question & Answer Period	8:00-9:00

# Introductions

- Community Co-Chair – Melissa Konecky
- Army Co-Chair – Garth Anderson
- Restoration Advisory Board (RAB) Members

# Introductions – Community RAB Members

## ***ACTIVE MEMBERS***

Melissa Konecky (RAB Co-Chair)

John Wageman

## ***INACTIVE MEMBERS***

Doug Druliner

Nate Morgan

Michael Mowry

LeRoy Nelson

Ross Rasmussen

Katherine Saniuk

Robert Seoles

# Introductions – Agency RAB Members

Lower Platte North Natural Resource District – Larry Angle

Lincoln Water System

Lincoln Department of Water Resources

Nebraska Department of Environmental Quality

Nebraska Health and Human Services System

Nebraska Army National Guard

Saunders County

University of Nebraska – Lincoln, Agricultural Research and Development Center

University of Nebraska – Lincoln, Environmental Health and Safety

University of Nebraska – Office of General Counsel

US Army Corps of Engineers, Garth Anderson (RAB Co-Chair)

US Army Reserve

US Environmental Protection Agency, Region 7, Scott Marquess

# Administrative Items

- Meeting Guidelines
  - RAB and Public participation
  - Honor time limits (Start on Time/End on Time)
  - Stick to the agenda
  - Please hold your questions until the Q&A period
  - One question at a time
  - Respect others
  - No personal attacks
  - Ensure equal participation



# Administrative Items

- Meetings are being recorded
  - Cameras are being used to videotape this meeting
  - Transcriptionist is present to record this meeting
  - When you ask a question – you will need to state your name loudly and clearly for the transcriptionist to hear you
  - Please hold your questions until the Q&A period
  - One question at a time

# Administrative Items

- Mead Project Mailing List
  - In order to better share information with the community, we are trying to update our mailing list
  - If you would like to receive site information from us, please give us your name and address
  - This information will not be shared with anyone and will only be used to mail information to you



# Administrative Items

- Mead Project Web Site
  - <http://www.nwk.usace.army.mil/projects/mead/projectindex.html>
  - Email list. NWK will send email notifications when new information is posted on the web site.

# Agenda

- General Groundwater Modeling Concepts (USGS)
- Kansas City District's Groundwater Model
  - Description and Purpose of the Groundwater Model
  - Comments from the Saunders County Consultant
  - Previous Comments From EPA & NDEQ
- USACE review of MUD model
- Questions and Answers
- Adjourn

# Kansas City District Presentation

- Description and Purpose of the groundwater model
- Comments from the Saunders County Consultant
- Previous Comments From EPA & NDEQ
- USACE Comments on the November 2004 and October 2005 MUD modeling reports

# Description and Purpose of the Groundwater Model

- The US Army Corps of Engineers-Kansas City District (NWK) has prepared and continues to maintain a computer based groundwater model called the Remedial Design Groundwater Model – or RDGM
- The RDGM model is simply a tool that can simulate the site conditions and make predictions about how the groundwater flow in the future

# Description and Purpose of the Groundwater Model

- The RDGM model makes predictions about which direction the groundwater will flow and how fast it will travel
- The RDGM model is used to predict how groundwater flow will change when new or outside influences are added – such as new extraction wells



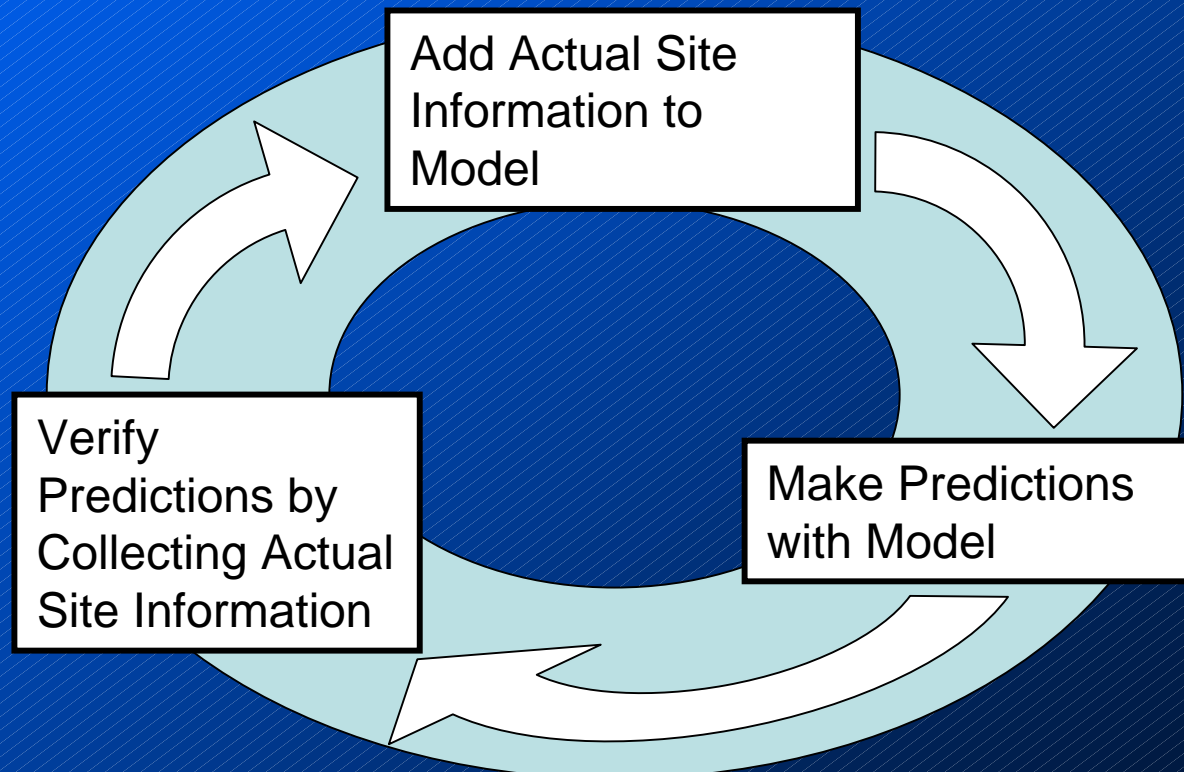
# Description and Purpose of the Groundwater Model

- The RDGM model is used to predict if the contaminated groundwater will be captured by the extraction system both with and without any other outside influences such as the Platte West well field or the City of Lincoln well field
- NWK uses the RDGM model to help manage the extraction system that is designed to capture the contaminated groundwater



# Description and Purpose of the Groundwater Model

- The proper way to use a groundwater model such as this, is to – ***Predict, but Verify***



# Description and Purpose of the Groundwater Model

- The RDGM model has been revised and updated several times already
  - 1996 = Conceptual Groundwater Model
  - 1998 = RDGM
  - 1999 = RDGM II
  - 2002 = RDGM III
  - 2004 = RDGM IV
  - 2005 = updates were added to RDGM IV as part of the LL1 Treatment System Design
  - Late 2006 = next version of model

# Description and Purpose of the Groundwater Model

- Each new version of the RDGM model contains more site specific information than the previous version
- More site specific information means the model can make better predictions about the groundwater flow

# Description and Purpose of the Groundwater Model

- The “Predict, but Verify” cycle is a cycle of continuous improvement
- As new information is gathered at the site, the new information is periodically added to the model
- The “Predict, but Verify” cycle will continue into the foreseeable future

# Description and Purpose of the Groundwater Model

- The RDGM model is not a regional model, because NWK and EPA and NDEQ are more interested in the small scale effects in and around the Mead site
- The RDGM model is capable of simulating the Platte West and City of Lincoln well fields, but is not focused on them
- The RDGM model is capable of simulating the Platte River, but is not focused on it



# Comments from the Saunders County Consultant

- The Saunders County Board of Supervisors hired a consultant to review the models produced by MUD and NWK
- The consultant made several comments on NWK's RDGM model
- In general, all of consultant's comments on the RDGM model were similar to previous comments by other reviewers



# Comments from the Saunders County Consultant

- The consultant's comments on the RDGM model, fall into the following categories:
  - Extent of contamination as depicted by NWK
  - Additional monitoring and effectiveness of the containment system
  - Riverbed Conductance and Hydraulic Conductivity
  - Impacts to Johnson, Clear & Silver Creeks

# Comments from the Saunders County Consultant

- NWK's responses to these comments can be summarized as:
  - Extent of Contamination - Recent investigation efforts have confirmed that the way NWK depicts the extent of contamination – especially the eastern boundary - is fairly accurate and adequate for managing the project
  - Additional Monitoring Wells - NWK already has plans to install many (almost 100) new monitoring wells along the southern and eastern plume boundary to watch for any impacts or problems with containment

# Comments from the Saunders County Consultant

- NWK's responses to these comments can be summarized as:
  - Riverbed Conductance & Hydraulic Conductivity - NWK agrees that both riverbed conductance and hydraulic conductivity are important and has used the best available information to estimate both of these factors. The next version of the RDGM model will further evaluate both of these factors.

# Comments from the Saunders County Consultant

- NWK's responses to these comments can be summarized as:
  - Johnson, Silver & Clear Creeks - The Creeks are included in the RDGM model. These creeks do affect groundwater flow. The only contamination present is along a small stretch of Johnson Creek. Samples collected from locations downstream of the plume do not show any contamination above action level.

# Previous Comments from EPA & NDEQ

- The EPA and NDEQ comments on the RDGM model, fall into the following categories:
  - Revise model to include more outside influences
  - Use model to estimate total clean-up time
  - Revise model to use different values for hydraulic conductivity
  - Perform sensitivity analysis on model
  - Add more irrigation wells to model



# Previous Comments from EPA & NDEQ

- NWK's responses to these comments can be summarized as:
  - Revise to include more outside influences - The next version of the RDGM model will be expanded in size to include the Platte West well field, the City of Lincoln well field, and other significant outside influences that could affect the containment system.



# Previous Comments from EPA & NDEQ

- NWK's responses to these comments can be summarized as:
  - Use model to estimate total clean-up time – The RDGM model is not exactly designed to estimate the total clean-up times under a variety of different scenarios. The purpose of the RDGM model is to help determine if the contaminated groundwater is being captured adequately. However, NWK has already allocated the resources needed to make modifications to the RDGM model so that it can be used to estimate the total clean-up time.

# Previous Comments from EPA & NDEQ

- NWK's responses to these comments can be summarized as:
  - Values used for Hydraulic Conductivity – The next version of the RDGM model will use the best available data to estimate different values for hydraulic conductivity. Possible sources for this information include work performed by NWK at the site, USGS, LPNRD, UNL

# Previous Comments from EPA & NDEQ

- NWK's responses to these comments can be summarized as:
  - Perform Sensitivity Analysis – The next version of the RDGM model will include a detailed sensitivity analysis.

# Previous Comments from EPA & NDEQ

- NWK's responses to these comments can be summarized as:
  - Add More Irrigation Wells – The next version of the RDGM model will include as many irrigation wells as appropriate for the expanded area to be covered in the model. The model will use the best available information regarding well location, pumping rate and pumping schedule.

# **USACE Comments on the November 2004 and October 2005 MUD modeling reports**

- NWK comments on the MUD modeling reports can be grouped into the following categories:
  - Evaluate average pumping rates higher than permitted rate
  - Calibration of the model
  - Use best available operational data for present day & future scenarios



# **USACE Comments on the November 2004 and October 2005 MUD modeling reports**

- Vertical transport
- Drain cells and Stream package
- Transient simulations vs. Steady State
- Irrigation wells
- Use best available data for model parameters



# ***Predict, but Verify***

